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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/812,277

03/29/2004

Iwen Chao

884.C26US1

2251

21186

7590

02/28/2006

SCHWEGMAN, LUNDBERG, WOESSNER & KLUTH
1600 TCF TOWER
121 SOUTH EIGHT STREET
MINNEAPOLIS, MN 55402

EXAMINER

LEWIS, MONICA

ART UNIT

PAPER NUMBER

2822

DATE MAILED: 02/28/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

H.A

Office Action Summary

Application No.

10/812,277

Applicant(s)

CHAO ET AL.

Examiner

Monica Lewis

Art Unit

2822

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 01 December 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,2,5-7 and 21-31 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,2,5-7 and 21-31 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 01 December 2005 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input checked="" type="checkbox"/> Other: <u>Marked Up Figure</u> . |

DETAILED ACTION

1. This office action is in response to the amendment filed December 1, 2005.

Drawings

2. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the following must be shown or the feature(s) canceled from the claim(s): a) at least one of the contacts is on three sides of the first die (See Claim 24); b) at least one of the contacts is on each side of the first die (See Claim 25); and c) a pad (See Column 21). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

4. Claim 21 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The Applicant has claimed that the contact is formed of a solder column and a pad. However, this is not disclosed. The only thing that is disclosed is the use of a solder column (For Example: See Page 5 Line 5).

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

6. Claims 1, 5, 22 and 23 are rejected under 35 U.S.C. 102(e) as being anticipated by Damberg (U.S. Publication No. 2004/0021211).

In regards to claim 1, Damberg discloses the following:

a) an interposer (20) that includes a fold which divides the interposer into a first section and a second section (For Example: See Figure 4);

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b) a first die (44) attached to a first surface of the interposer at the first section and the second section (For Example: See Figure 4);

c) a contact (42) attached to the first surface of the interposer at the first section and the second section (For Example: See Figure 4);

d) a second die (78 and 80) attached to a second surface of the interposer, the second die being stacked onto the first die and electrically coupled to the first die by the contact and conductive paths that are part of the interposer (For Example: See Figure 4).

In regards to claim 5, Damberg discloses the following:

a) a plurality of contacts that are each attached to the first surface of the interposer at the first section and the second section (For Example: See Paragraph 31) (Note: The contact (44) is made of more than one layer. Therefore, there are a plurality of contacts.).

In regards to claim 22, Damberg discloses the following:

a) the contact extends between two different portions of the first surface (For Example: See Figure 4).

In regards to claim 23, Damberg discloses the following:

a) at least one of the contacts is on one side of the first die and at least one other of the contacts is on an opposing side of the first die (For Example: See Figure 4).

Response to Arguments

7. Applicant's arguments filed 12/1/05 have been fully considered but they are not persuasive. Applicant argued that "the Damberg reference does not include a contact attached to the first surface of the interposer at the first section and the second section." However Damberg does disclose a contact (42) attached to the first surface of the interposer (20) at the first section and the second section (For Example: See Figure 4-Marked Up Copy).

Allowable Subject Matter

8. Claims 2, 6, 7 and 26-31 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

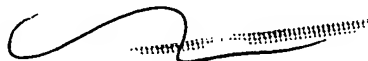
9. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Monica Lewis whose telephone number is 571-272-1838. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Zandra Smith can be reached on 571-272-2429. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300 for regular and after final communications. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.

ML

February 17, 2006



Mary Wilczewski
Primary Examiner



US 20040021211A1

(19) **United States**(12) **Patent Application Publication** (10) **Pub. No.: US 2004/0021211 A1****Damberg**(43) **Pub. Date:****Feb. 5, 2004**(54) **MICROELECTRONIC ADAPTORS,
ASSEMBLIES AND METHODS****Publication Classification**(51) **Int. Cl.⁷** **H01L 23/02**(52) **U.S. Cl.** **257/686**(75) **Inventor:** Philip Damberg, Cupertino, CA (US)**Correspondence Address:****LERNER, DAVID, LITTENBERG,
KRUMHOLZ & MENTLIK
600 SOUTH AVENUE WEST
WESTFIELD, NJ 07090 (US)**(73) **Assignee:** Tessera, Inc., San Jose, CA(21) **Appl. No.:** 10/236,442(22) **Filed:** Sep. 6, 2002**Related U.S. Application Data**(60) **Provisional application No. 60/401,391, filed on Aug. 5, 2002.**(57) **ABSTRACT**

A first microelectronic element such as a semiconductor chip is mounted to a circuit board using an adaptor which has a region extending beneath the first microelectronic element and an additional region which may be folded over the first microelectronic element or which may project laterally from the first microelectronic element. The adaptor includes a functional element in the additional region, such as a further microelectronic element or an array of terminals for mounting another element. The assembly provides the benefits of a stacked chip assembly or other mustachio module, but can be made without the need for a special prepackaged stacked chip assembly. The adaptor can be configured so that it does not materially increase the height of the first microelectronic element above the circuit board.

